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ART. I. *Lecture on Cholera Morbus.* By N. CHAPMAN, M. D. Professor of the Institutes and Practice of Physic and Clinical Practice in the University of Pennsylvania.

THE ensuing article I am induced to submit to the press, to show the close analogy of our own indigenous cholera, in its more violent character, to the late epidemic form of the disease. On the irruption of this horrible pestilence, and the same opinion seems still to be held by many, it was deemed to be entirely a new disease, peculiar and distinctive in its nature, its symptoms, and treatment. Excepting some slight modifications, always impressed on disease by an epidemic influence, I think it will appear, that they are essentially the same in these respects, and perhaps, by this publication, I may serve in a degree, to correct an erroneous view hastily adopted, and now too commonly entertained. The article is a lecture which I have delivered every season for the last twenty years, as a part of a course on the practice of physic, and now present it with the alterations or additions only, which I have taken care to designate. That such is the fact, I appeal to those of my class, who have notes of the lecture, and also to the recollection of Drs. MIFFLIN and MARTIN, who were attached to the cholera hospital under my charge, to whom it was read on the first breaking out of the epidemic cholera in this city. Could I with fidelity to my pledge, have revised the lecture, it might easily have been improved, as well in the style, as some of its doctrines, which latter in several particulars, I have been led to change, by more am-

ple observations derived from the position I occupied during the visitation of malignant cholera among us. The next number of this Journal will contain a communication from me on that disease.

### *Cholera Morbus.*

This disease has been as inelegantly as inappropriately named, the term cholera morbus being formed from a mixture of the Greek and Latin languages—*χολή*, bile, and *ῥέω*, to flow, and *morbus* disease, meaning strictly a bile flux. It will hereafter be seen, that an excess of bile is a very rare incident of the affection, never occurring in its severer forms, and that the discharge, whatever it may be, must be deemed merely a symptom of a pathological condition, of which this appellation is very inaptly expressive. Correctly, I think, it may be derived, as indeed it was by TRALLIAN, from the Greek *χολάριον* and *ῥέω*, indicating that the discharge is excreted from the intestines, rather than secreted by the liver. Thus deduced, a designation at least might be formed more justly significant, of one of the most characteristic features of the disease. But objectionable as the received title is, I am afraid it is too firmly fixed by usage now to be changed, and I shall be compelled to retain it.

Cholera morbus appears to have been recognised by our most ancient writers. There are frequent allusions to it by HIPPOCRATES and GALEN, and it is fully and faithfully described by CÆLIUS AURELIANUS, PAULUS ÆGINETA, and especially by ARETÆUS.

No disease varies more in degree of violence than the one now under review. An attack of it usually comes on suddenly, or with little or no premonition. The earliest affections in most instances, perhaps, are soreness, and distention more or less over the whole abdomen, though particularly felt at the epigastrium, with a sense of fullness, tensive uneasiness and oppression in that position, attended by borborygmus and a twisting colicky pain about the umbilicus—then ejections of the ordinary contents of the stomach, mixed with a thin watery fluid, or ropy mucus, occasionally tinged by bile, or more probably, by some morbid secretion of the primæ viæ supposed to be bile, of different hues, accompanied by cramps of the abdominal muscles, as well as those of the limbs, especially of the calf of the leg—and there is at the same time pain in the back, which I have seen to be excruciating. The vomiting is soon followed by copious discharges from the bowels, at first of a thin fluid in which fæcal matter is dissolved, and afterwards the evacuations each way are essentially of the same character and aspect.

Contradictory as it may be to a common opinion, I do not believe, except in very slight attacks, that bile is ever evacuated, or only in

the very beginning, prior to the establishment of the case, or subsequently, when convalescence is about to take place. The accounts to the contrary are by writers who have delineated the disease as it usually prevails in the temperate climates of Europe, probably in the mildest character of which it is susceptible.

During the intervals of vomiting, nausea is most harassing, the thirst intense, with an indescribable wretchedness about the epigastric and precordial regions. As the case proceeds so do the evacuations upwards and downwards more frequently recur, and the cramps and spasms are correspondently exasperated, in some instances reaching to so tremendous a height, that I have seen the trunk rendered rigid, the fingers so clenched as not easily to be relaxed, and the extremities otherwise variously distorted, constituting on the whole a tetanoid condition. Great weakness, with a feeling of exhaustion from emptiness, is complained of in the interval of the paroxysms—and occasionally confusion of head, noises in the ears, or partial deafness are experienced.

The pulse, which had been throughout feeble, henceforward becomes still more so, and with an increased depression of general strength, there are, an exceedingly cold, damp, collapsed surface, more especially of the extremities—a haggard countenance—burning in the stomach or at the umbilicus—eager desire for cold drinks—the tongue however moist, white or milky—the pukings and purgings even more frequent and copious, consisting of a fluid resembling greasy or dirty water, sometimes darker, and floculose like coffee-grounds, or the settlings of port wine—with scanty or suppressed urinary secretion.

This condition cannot endure long; and hereafter there is a rapid sinking manifested by some remission of the preceding affections, with a nearer approach to exhaustion—the pulse tremulous, thready, or hardly perceptible—still, however, extreme jactitation continues—sometimes there is muttering delirium, or with a full retention of the senses—a low, stammering, sepulchral voice—the skin dewy and of a corpsy coldness—lividness of countenance, and of the fingers, the nails particularly—impeded, anxious respiration—singultus—sunken eyes—hollow cheeks—purple or pallid shrivelled lips, &c. &c.\*

\* This account corresponds in so many of its features with that given of the recent malignant cholera, that it might be supposed to be copied from it. But it was written long before I had any knowledge of that epidemic, and is a delineation of our own indigenous disease as I have seen it myself. There is not a symptom mentioned, which may not be found in the descriptions of cholera by the olden authorities, of which a very excellent digest is contained in James' Medical Dictionary. The violence of the cramps and spasms, the contractions

It is not to be supposed, from the foregoing narrative, that cholera always exhibits so frightful an aspect. Like other diseases, it has, as previously intimated, its gradations, and I have described one of its most violent forms, though even such is so frequent in our climate, either originally, or made so by neglect, or ill management, that I deemed it proper to direct attention to it.

In its more ordinary presentations, it comes on with sickness of stomach, flatulence, some of the symptoms of colic, then pukings mostly of indigested aliment, sometimes with bile, though more commonly without it, soon followed by purgings, of some watery fluid, which is also vomited—cold, damp skin—weak pulse—cramps always of some portion of the alimentary tube, and occasionally of the external muscles. Even this comparatively mild case, may however, when badly treated, speedily degenerate into a state as alarming as the graver form of the disease which I have described.

Cholera is incident chiefly to close, sultry, autumnal weather, occurring however sporadically, at all seasons, and in every climate. To certain positions it would seem endemial from its common prevalence, sometimes in our foggy marshy districts, though more especially to portions of the Indian Peninsula, where it almost constantly exists to a considerable extent, denominated by the French settlers in that section of country, *mort de chien*.

Breaking out under such circumstances, it seems probable, that it is caused like bilious colic, and the other nearly allied affections, by the influence of paludal exhalations. The effluvia of putrid animal matter are very apt to excite it when concentrated. It has often been induced in persons concerned in the opening of graves, particularly in extensive exhumations—more rarely in those engaged in dissections: we see it occasionally around charnel houses, and similar sources of stench, and it is said to have prevailed in the vicinage of fields of battle, where the dead were left to rot and putrefy.

More generally, however, it may be traced to the sensible qualities of weather, cold or moisture succeeding to heat or dryness, or to an exposure to the sun, or to a draft of air, or to the dampness or coldness of the night, or to sleeping with windows open, or to wearing thin apparel, or entering cellars or similar places, or to whatever,

of the fingers, the tetanoid condition of the body, the lividness of countenance, and of the lips and nails, the cold collapsed surface, the thin aqueous discharges, sometimes resembling the washings of flesh, or of a dark floculose fluid, the haggard emaciated countenance, the altered voice, the embarrassed respiration, the unquenchable thirst, the burning sensations in the stomach, the anxiety and jactitation, are all distinctly noticed.

indeed, checks perspiration. It is also excited by irritating or otherwise offensive ingesta, particularly by crude, unripe fruits, or raw or imperfectly cooked vegetables, or gross animal food—and above all, by the several kinds of shell-fish, especially if tainted by being kept too long—and is very frequently brought on by a debauch either in eating or drinking—sometimes by poisonous matters, the preparations of copper, arsenic, and such like articles—also by harsh emetics or purgatives, inducing hyperemesis, and hypercatharsis, and even by excessive fatigue.

Exasperated passion has moreover induced it, as well as some other mental emotions or perturbations, as the agitations of grief or terror—of the latter of which I once saw an instance in a lady, from the alarm of a supposed burglary at night. Cases, however, of this nature, are comparatively rare, and, perhaps, would not take place at all, were there not a considerable degree of predisposition at the moment.

Cholera may be so pervading as to become an epidemic, and I have known it to be so partially in this city, either preceding or attending autumnal malignant diseases. It was one of the forms of yellow fever, and I met with many instances of it during the late prevalence of pernicious intermittents among us. The same tendency in it is noticed by SYDENHAM and other writers to an epidemic prevalence. But in 1817 it broke out in India, with a violence and universality of pervadence wholly unexampled, sweeping over immense regions, and destroying annually more than a million of people, as appears from the official reports on the subject, and has not yet ceased—the aggregate of the mortality having already amounted, according to different estimates, from twenty to fifty millions.

[Like the deluge of old, there seems indeed to be no barrier to its progress. Continuing its fell career, from its original position, we have recent intelligence of its having overleaped the mountains of Caucasus,—is now spreading its devastations through the adjacent provinces of Russia, and it is most seriously to be apprehended, that it may diffuse itself throughout Europe. What is to be our fate in regard to it, no one can safely predict. Conformably to the laws of such epidemics, it is not improbable that it may be extended to us, and even still further, so as ultimately the whole world shall be embraced in this calamity. Not more than merely to allude to the narrow boundary which separates, at one point, our continent from that of Europe, the wide ocean itself, that interposes between us, in other parts, may not arrest it. Epidemics not at all dependent for their propagation on contagion, rea-

dily transmissible in other modes, have in many instances, proved common to these, and other remote sections of the globe.

This is a fact which having attracted very little attention, is not generally known. Ever since I have been connected with the profession, we have had a succession of very striking evidence in confirmation of it, and there is much reason to suppose that antecedently it was not otherwise. The yellow fever, the first of such occurrences in my time, prevailed here, and in the peninsula of Europe simultaneously. It had only begun to decline when there broke out an influenza of the most fatal character in France, that travelled over Europe and this country. This was followed, after a few years, by an equally pervading typhoid fever of both regions, called by us spotted fever. It had hardly disappeared, when malignant or pernicious intermittents, and their kindred affections arose, and alike traversed the old and new continent. Contemporaneously, we each had in an equal degree, the variolous disease in its diverse modifications—the former, or intermittents, in warm, and the latter in cold weather. Lastly, they have abroad already the scourge of epidemic cholera, and prudence dictates from this review, that we should be prepared to receive its visitation.]\*

As usually happens in regard to new diseases, this epidemic cholera is ascribed in its origin to different causes, as contagion, spoiled rice, marsh miasmata, and other ordinary agencies, utterly inadequate to account for it. The only true explanation is to be sought in an epidemic influence, of the precise nature of which, however, we know nothing with certainty.

Common cholera, though resembling several of the other disorders of the alimentary canal, is still somewhat peculiar, and need not be confounded with these. It may be distinguished from colic, among other respects, by the absence of constipation—and it differs from diarrhœa and dysentery by more severity of spasm, and by the evacuations being peculiar, and for the most part, unmixed with any bilious or bloody matters.

To decide on the issue of a case, is perhaps at all times not easy. Examples of recovery are frequent, in a state, apparently desperate, and of death suddenly taking place when least to be expected. Yet it may be concluded, that the danger is imminent, where the disease continuing, there is extreme reduction of the pulse, with general prostra-

\* The above remarks, included within brackets, were introduced into the lecture during the winter session of 1831-2.

tion of strength, short, hurried respiration, coldness of surface, clammy sweats, lividness of the lips or fingers, tumid abdomen, watery, greasy, and especially dark floculose discharges, suppression of urine, hiccup, distressed haggard countenance, and delirium. Even in this condition, with the ill-boding Hippocratic countenance added, I have known the patient to get well.

To entitle us to a favourable prediction, there must be with the subsidence of the cramps of the muscles, and of the turbulent state of the alimentary canal, bilious evacuations, a rising of the pulse, a restoration of temperature, with some genial moisture of the surface, and sweet, undisturbed sleep, to which there is generally a strong tendency in the incipency of convalescence. Cholera, however, under most circumstances, is a very alarming disease, exacting the greatest vigilance and attention.

In violent attacks of it, we meet with on dissection, the stomach and bowels either exceedingly relaxed, flaccid and pale, or the latter contracted by spasm, or variously convoluted or twisted—sometimes, however, with considerable turgescency of the vessels or phlogosis at certain points, and very often congestion of the liver, and more or less in the abdominal viscera generally. Engorgement of the lungs is not so common—sometimes however to an extent resembling the apoplectic condition of these organs. The brain is also found engorged, and inflamed with occasionally extravasations. Of the state of the spinal marrow I cannot speak, never having examined it, or seen any reports regarding it. But I should presume it to be affected very much as is the brain. The most interesting appearance, perhaps, is that each side of the heart, though especially the right side, contains thick, viscid, black blood, the right loaded with it, pervading indeed in a degree the whole circulation, in every organ and part of the system.

During life, the blood which may be drawn away is often similar, or of a dark, heavy, venous appearance.\*

The earliest notion regarding the pathology of this disease, and which indeed seems at present to be entertained by many, was, that it consists only in an excess of biliary secretions. Cholera, which

\* To the dissections of my late friend, Dr. Lawrence, I am mainly indebted for the anatomical characters of cholera. Little is recorded on the subject prior to the occurrence of the epidemic form of the disease. His examinations were confined principally, though not exclusively, to the cases of cholera occasionally presented during the prevalence some years ago, of malignant intermittent fever in this neighbourhood, and which were undoubtedly a modification of that disease.



means a flow of bile, is sufficiently expressive of this view. Granting the alleged incontinence of bilious discharge, which, however, cannot be done, it must surely be considered only an effect of some pre-existent hepatic irritation. An allusion has been made to the analogy between this, and some other disturbances of the alimentary tube, and especially bilious colic. The pathology of these two diseases has so much in common, that content with referring generally to what was said of the nature of the latter affection, I have little further to remark. Cholera, though simple in its origin, ultimately becomes a case of considerable complication, arising in the stomach, and thence by a play of sympathies, entangling other parts of the system in disordered action to a wide extent. It is on the central digestive organ that the primary irritation is felt, which spreads ordinarily to the bowels, to the liver, and to the brain, &c. To this conclusion I am led, by the recollection of the causes of the disease, which are impressions on the cutaneous surface, from the variations of weather, speedily transferred to the stomach—or some morbid impingement directly on that viscus by miasmata, by very offensive ingesta, or by intemperance and debauchery. It may be further added, in corroboration of the same view, that the first ejections by vomiting consist merely of the contents of the stomach, or variously coloured mucus, or more watery fluids, and that bile is not thrown up, before the biliary organs are secondarily affected, and not even then, unless the attack is very slight. Being once placed in this state, and only under the circumstances just noticed, the liver is then stimulated to increased efforts, and we have as an effect, the bilious discharges incident sometimes to the case. But in a short time, the energies of the stomach, by which tone and support are afforded to every part of the chylopoietic system, give way from the peculiar distress which that viscus suffers. The liver, so immediately dependent on it, sharing in this indirect debility, is unable to return the blood which rushes into it, and engorgement of the portal circulation takes place, distinguished by the ordinary symptoms of that condition, and especially the suspension of the hepatic secretory office.

That such is a correct estimate of the pathology of simple cholera seems to be confirmed by the history of the causes of the disease, its symptoms, the phenomena on dissection, and we shall presently see, the method of cure. Conclusive, however, on this point, is the fact, that the disease may at any time, be imitated by certain exasperations of the stomach. Give calomel, tartarized antimony, and gamboge, in large portions, and an artificial cholera morbus is commonly the result. This very prescription was formerly used in this city to



effect copious evacuations, upwards and downwards, in the treatment of what were then called bilious fevers. Even a more striking illustration is supplied in the instance of certain poisons acting on the stomach, where indeed the phenomena are so similar to those of genuine cholera, as sometimes not to be discriminated, as we see in the history of legal proceedings, the ablest medical men not being willing to decide merely from a contemplation of the external physiognomy of the case. As the disease proceeds, however, the gastric irritation being more extensively spread, embracing the entire *primæ viæ*, there is of course more concentration of blood in the deep-seated vessels, derived at the expense of those of the periphery of the body, and in consequence, a greater degree of inward congestion, and general prostration of power.

Much has been imputed to the peculiar condition of the blood in cholera, which, as is alleged, from its imperfect decarbonization, being rendered unfit to sustain the brain, cerebral energy is impaired, and hence all the actions dependent on it become enfeebled. But whatever may be the influence of such blood, it seems to me quite certain that the change it undergoes is secondary, and that it, and every other link in the ultimate catenated series of events, constituting the disease in its maturity, are referable to the impressions on the stomach, and through it on the ganglionic nerves, and thence to the spinal marrow and brain.

It is only on such an hypothesis that some of the most prominent phenomena of the disease admit of an explanation. The early disturbance of the gastro-intestinal functions, the pain in the back, the violence of the spasms, the confusion of head, all go to show, that the whole nervous system is deeply implicated, and whatever subsequently happens, may readily be conceived to proceed from its derangement. As to the state of the mucous surface of the digestive tube, so immediately concerned in the disease, it is presumable, that it varies in different cases, as well as in the several stages of the same case. There is probably at first merely irritation of the exhalants, to which the copious serous discharges are referable. But subsequently inflammation may ensue, in a greater or less extent, though I should suspect, from the character of the discharges, very rarely of any part of the follicular or criptous structure.

Deducing our practice from the theory I have proposed, it would follow, that the only indication in the commencement to be consulted in the treatment, is the removal of the original gastric irritation. But it sometimes happens that a theory may be perfectly just, and still our practice cannot be a regular or immediate derivation from

it. Though in ophthalmia, inflammation is the essence of the disease, previously to attempting its reduction, the irritant, if such exist in the eye, producing it, must be removed. Thus too, in dropsy of the cavities we are occasionally called upon to evacuate the oppressive effusion, in anticipation of the cure of the pathological condition of which, it is merely an effect. Exactly on the same principle are we compelled sometimes to proceed in cholera. Not a few of the cases of it are induced by such irritating contents of the stomach, that these acting as the immediate, or at all events the aggravating cause, the case will not yield without they are carried off. This is the state of the disease which I shall first consider.

Diluent drinks are here, and indeed under all other circumstances of cholera, very much prescribed. Tepid chamomile tea, or water, or barley water, or weak chicken tea, will sometimes answer in mild cases when copiously drank. This is an old plan of managing cholera morbus, espoused by Sydenham, and from him descended to the present times, and retained pretty much by the weight of his authority. Why the stomach should be deluged with such beverages, instead of being emptied at once by an emetic, I never could learn or comprehend. It is presumable, however, that the practice arose out of an assimilation of the case to that of poisons, a very predominant notion at one period, the fluid being deemed of a very acrimonious and virulent nature. Be this as it may, the effect of the emetic would unquestionably be more prompt and complete. Entertaining this conviction, I very early adopted such a course. Twenty grains of ipecacuanha I usually order, and that its operation be promoted by warm water. The stomach becomes now relieved of the causes of irritation, and sometimes completely tranquillized.

More is done by the emetic, in occasionally overcoming the spasms, and on its secondary and diffusive operation taking place, a centrifugal direction is given, whereby the irritation of the first passages, as well as the deep-seated congestion, are removed. On the restoration of the just balance in the circulation, and the functions dependent on it, the system before prostrate, now emerges from under the load, and we are presented with altogether a case more open and manageable.

Taking this principle to be correct, perhaps I have too narrowly circumscribed the application of emetics, to the disease induced by crapulency, or by other highly offended states of the stomach. My experience, I confess, is not sufficiently extensive under different circumstances, to speak so confidently of the propriety of the practice, though I have tried it successfully in several instances, and can dis-

cern, when duly regulated, no objection to such general extension of it.

Cases however of extreme prostration may occur, in which an emetic might be hazardous, or utterly inadmissible, though such in the beginning of an attack I have rarely or never witnessed.

Nor is it to be supposed that an emetic is always demanded. No offensive matters existing in the stomach, an appeal may be made in most instances without delay, to calm irritation, and subdue the spasmodic pain and turbulence. It is here that the course of treatment can be in strict conformity to the pathological view I have suggested. Combinations, into which opium enters largely, are the most approved remedies. The potash mixture with laudanum, the spirit of camphor, or camphorated emulsion with nitrous acid and laudanum, are greatly prescribed—and perhaps the acetate of lead and opium are deserving of confidence. Laudanum alone, or what answers better, opium, and particularly an old opium pill, I generally prefer, as less apt to be rejected. Calomel in large doses has sometimes answered under such circumstances.

But such may be the degree of gastric irritability, that none of these medicines will be retained, when a recurrence may be had to an anodyne enema. Could we indeed uniformly command an acquiescence in the practice, it were better at once to place the system in this way under an opiate impression, leaving the stomach to repose, or at least released from the annoyance of remedies. Numerous are the instances within my own experience, thus managed by a large anodyne injection at the very onset, which gave me very little further trouble. Defeated in this design, however, the endermic practice with morphia, offers a resource worthy of trial. Great advantage is sometimes attained by a sinapism over the epigastrium, or on each of the lower extremities in this exquisitely irritable state of the stomach, and still more, by an application of cups or leeches to the former position.

Evidence, however, existing of heavy congestion, venesection is to be employed. Let it be remembered, that the pulse in this case is not the only guide. Whatever may be its feebleness, when there is violent pain, and an ordinary degree of constitutional vigour, the lancet may generally be safely urged. This I have sometimes done, the pulse being exceedingly low, and have found it to rise by depletion. It may, I think, be laid down as a rule, without hardly an exception, that in the early stage of all diseases attended by *much pain*, if we find the pulse weak, it ought to be considered as depressed, which is most effectually removed by direct evacuations. Yet,

admitting this to be true, we are, at the same time, in some of these cases, to proceed very circumspectly with the lancet. Either from the system refusing to react, or that the general circulation is so emptied by congestions in the great viscera, that blood suddenly and copiously lost would be productive of harm, and might probably extinguish life. We therefore draw it away slowly, watching its effects, and allow time for the vital or recuperative energies to be developed, and come again into play. Detractions of blood are to be deemed appropriate when the stream flows strongly, its colour gradually becoming more florid, and the pulse rising, and assuming greater tone and fulness. The reverse of these indications shows its impropriety, and constitutes an admonition to desist. In doubtful circumstances, where there is an imperfect reaction, it may be more prudent to substitute topical bleeding from some portion of the abdomen, or in preference from the spine, should we suspect irritation in that part, either by the expression of pain in it, or the existence of violent spasms. The loss of blood may, here, be preceded by sinapisms, and by the warm bath, which usually proves very beneficial in cholera, and is particularly suited to the case immediately before us. Not having it however at hand, the vapour bath may be substituted, or hot fomentations applied diffusively over the body with subsequent frictions by warm flannel, and on a favourable condition arising, then, should it seem to be required, venesection or local bleeding may be safely practised, and sometimes to a considerable extent.

Not arrested, the disease will soon reach a stage to demand a decidedly stimulating course of treatment. It is now, should prostration be alarming, that we must recur to sinapisms or blisters, and to apply dry heat, by hot sand bags, or some similar medium, or to rube-facient frictions.

As a vesicatory, the nitric acid is greatly extolled in this case. Two parts of the acid with one of water, are directed to be spread over the part with a feather, or the surface may be rubbed with the mixture, till some sharp pain is induced, when the acid is to be neutralized by a solution of salt of tartar. The cuticle can now be easily detached, and leaves the cutis raw, which may be continued in this state by dressings with some stimulating ointment. The pain of this application we are told is not greater than that from the fly blister, and much more speedily subsides. It is particularly recommended by *quickness* of action, the effect being attained in two or three minutes. May it not however, like a severe burn, completely destroy the vitality of the part, and thus prove useless or even mischievous?

In regard to internal remedies in this sinking or collapsed condition, those chiefly resorted to are of the class of diffusible stimulants. The liquor ammoniæ, a solution of camphor in ether, the spirit of turpentine, the tincture of capsicum, hot toddy, or what is better, *mint julep*. But while directing any of these articles, opium, which is our sheet anchor, ought to be continued, should it not be forbidden by cerebral disturbance.

Lately two new expedients have been suggested, more particularly with a view to the suspension of the vehement retchings, and attendant spasms, which seem to have some claims to attention. The first is an application of tourniquets to the arm and thigh of opposite sides. This I have tried and with decided advantage, so far as regards the suppression of the cramps of the muscles of the extremities. The second consists in fastening the patient down on a board in a horizontal position, with straps so that he cannot move. The abdominal muscles, and other auxiliary powers in vomiting, being thus suspended, then to administer laudanum and other remedies, which are represented always to be retained to the full effect intended.

As soon as the stomach becomes retentive of such articles, purgatives are usually required, and among which calomel, on several accounts, is to be preferred. Notwithstanding the common impression to the contrary, it is in a large dose of a less irritating tendency than perhaps any other, and is peculiarly calculated to emulge or unload congested organs. But when the case is of a milder character, castor oil, or any other laxative, will be adequate, and may be substituted. Evacuations having been procured, should the secretions seem to be deficient or vitiated, it will then be proper to recur to calomel in small doses alone, or with a modicum of opium, with a view to their promotion or rectification.

Of regimen in this disease little need be said. The stomach is in such a state as to preclude nourishment. But so great is the thirst that some drink must be provided. The thin vegetable mucilages are usually directed in the practice of this city. Cold lemonade, even icy cold, however, is far more grateful, and may be allowed. The late Professor KUHN thought it so salutary, that he prescribed it liberally as a remedy. It should be made with boiling water, and then permitted to cool. There is no objection to cold water in small portions, or small pieces of ice itself held in the mouth as mentioned on a preceding occasion.\* As soon as the stomach becomes retentive

\* The allowance of cold drinks, and of ice in cholera, has been claimed as an innovation first introduced into the treatment of the recent epidemic form of the disease. But the practice is very old, and was familiar to me. The stomach

of food, the most appropriate is thin chicken water, or some similar article.

By pursuing the practice I have inculcated, a large majority of the cases of the disease, however violent, will submit. But occasionally we have to encounter some tremendous attacks of it, in which all our skill and resources are required. Cholera I have known to terminate fatally, such may be the vehemence and rapidity of its career, in a very few hours. These are its malignant states, occurring for the most part during the prevalence of some peculiar distemperature of the atmosphere. Even, however, in ordinary times, it will in some instances run its course in twenty-four hours, or half the period.

In the propriety of the practice I have recommended, I am the more confirmed, since, after considerable fluctuation, it was admitted to be the most successful in the dreadful epidemic of this nature in the eastern world, to which I have alluded. Copious losses of blood by venesection chiefly, and the liberal use of calomel with opium, according to the official reports, were the chief remedies, in which confidence was ultimately reposed.

Common cholera is extremely liable to recurrence, and to guard against which, all the exciting causes should be avoided—especially an exposure to the sun or night air, or in any way to check perspiration, cold feet, an excess in eating or drinking, or improper articles of food, any undue exercise, intemperate indulgence of passion.

An attention to the bowels is also demanded. These are to be kept in a soluble state, by the use of magnesia or rhubarb if required, and with a view to restore tone to the alimentary canal the bitters may be taken, as quassia or columbo. The elixir vitriol has also been recommended. Wearing of flannel should not be overlooked in the regulation of the prophylactic measures. But where we find a very strong predisposition to the disease, so that it is readily excited by slight causes, we may be persuaded that the *primæ viæ*, or hepatic system, has acquired a morbid susceptibility from an essentially de-ranked condition, which ought to be carefully ascertained and removed.

having been previously evacuated by frequent draughts of tepid water, it is recommended by Aretæus to give a quarter of a pint of cold water to check the purging, to cool the ardent heat of the stomach, and to abate the thirst, and this he advises to be repeated as often as the patient throws up what he drinks. Many since Aretæus have extolled the remedy, and to use the language of a writer on the subject, "for it cools, blunts acrimony, and restores the tone of the parts. In this country it may be safely given, if large draughts at a time are avoided."—*Parr's Medical Dictionary*.